

IN THE CLAIMS

Please amend the claims as follows:

1. (Currently Amended) A resin ~~microchannel~~ substrate for use with a cover plate,
said resin substrate comprising:

a surface having a fluid supply port, a recess leading to ~~[[a]]~~ the fluid supply port, and
a bank adjacent to the recess, ~~and the bank~~ having many micro grooves on a surface, which
grooves form microchannels connecting an inside of the recess and an outside of the recess
when the surface of the substrate is firmly attached to ~~a flat plate serving as a~~ the cover plate,

wherein each of width and height of the microchannels is within a range of 1 to 300
μm and a width/height ratio of the microchannels is within a range of 1:20 to 20:1, and

wherein a contact angle of the surface of the resin substrate with respect to water is 5°
to 60°.

2. (Canceled)

3. (Currently Amended) ~~[[A]]~~ The resin ~~microchannel~~ substrate according to claim
1, wherein an edge angle of the many grooves on the surface of the bank is 90° or less.

4. (Currently Amended) ~~[[A]]~~ The resin ~~microchannel~~ substrate according to claim
1, wherein the many grooves on the surface of the bank have a fine raised and recessed
structure.

5. (Currently Amended) ~~[[A]]~~ The resin ~~microchannel~~ substrate according to claim
1, wherein the resin ~~microchannel~~ substrate is a laminated resin ~~microchannel~~ substrate
comprising a plurality of substrates placed on one another in the same direction and in close
contact with each other to form many microchannels on a contact surface.

6. (Withdrawn -- Currently Amended) ~~[[A]] The resin microchannel~~ substrate according to claim 5, comprising a substrate alignment unit used when placing the resin ~~microchannel~~ substrates on one another.

7. (Withdrawn -- Currently Amended) A method of manufacturing a resin ~~microchannel~~ substrate of claim 1, comprising the steps of:

forming a resist pattern on a substrate;

forming a metal structure by depositing a metal according to the resist pattern formed on the substrate; and

forming a resin ~~microchannel~~ substrate by using the metal structure.

8. (Withdrawn -- Currently Amended) A filtration and classification method using ~~[[a]] the resin microchannel~~ substrate of claim 1, wherein particles are separated by running a particle floating fluid through the microchannels.

9. (Withdrawn -- Currently Amended) A filtration and classification method using ~~[[a]] the resin microchannel~~ substrate according to claim 8, wherein ~~a part to be the cover plate is a flat transparent plate that is~~ firmly attached to the surface of the substrate having many grooves ~~is a transparent plate~~ so as to perform filtration and classification while optically observing a separation process in at least part of the many microchannels.

10. (Currently Amended) A method of producing an emulsion using ~~[[a]] the resin microchannel~~ substrate of claim 1, wherein a first fluid is sent from the inside of the recess to the outside of the recess through the microchannels and dispersed in a second fluid supplied to the outside of the recess and not mixing with the first fluid.

11. (Currently Amended) A method of producing an emulsion according to claim 10,

wherein ~~a part to be~~ the cover plate is firmly attached to the surface of the substrate having many grooves and is a transparent plate in at least part of the many microchannels.

12. (New) A microchannel apparatus comprising:

a resin substrate having a surface having a fluid supply port, a recess leading to said fluid supply port, and a bank adjacent to said recess, said bank having a plurality of grooves on a contact surface thereof; and

a cover plate attached to said contact surface of said resin substrate,

wherein said plurality of grooves and said cover plate form microchannels connecting an inside of said recess and an outside of said recess, and

wherein said surface of said resin substrate has a contact angle with respect to water of 5° to 60°.

13. (New) The microchannel apparatus according to claim 12, wherein said microchannels have widths and heights that are each within a range of 1 to 300 μm , and wherein a width-to-height ratio of said microchannels is within a range of 1:20 to 20:1.

14. (New) The microchannel apparatus according to claim 12, wherein an edge angle of said plurality of grooves on said contact surface of said bank is 90° or less.

15. (New) The microchannel apparatus according to claim 12, wherein said plurality of grooves on said contact surface of said bank have a fine raised and recessed structure.

16. (New) The microchannel apparatus according to claim 12, wherein said resin substrate is a laminated resin substrate including a plurality of substrates placed on one another and forming microchannels therebetween.